**Implementation of a R4D framework for the AfricaRISING**

a fast-track project

Background

Agricultural development and research in Sub-Saharan African countries have often generated a lower impact than expected. There are multiple reasons for this including:

* incomplete understanding by researchers of farmers’ existing knowledge and skills as well as their priorities and strategies;
* lack of common understanding and weak exchange mechanisms of knowledge, information and other resources among stakeholders (farmers, extension, R&D, market actors etc.)
* disregard of the complexity and diversity of farming systems and related institutions;
* thematic research promoting single or combined technologies that disregard most of the components/interactions of households and communities
* insufficient efforts to integrate biophysical research with strong socio-economic component

To overcome this low impact, the AfricaRISING program of the USAID proposes to combines both research and development objectives to identify and evaluate demand-driven options for sustainable intensification (SI) and facilitate partner-led dissemination of integrated innovations. The purpose of this program is to:

*“Provide pathways out of hunger and poverty for small holder families through sustainably intensified farming systems that sufficiently improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base”.*

Demand-driven research and partner-led processes are central concepts to this program. These concepts can be implemented in many different ways depending on background and research(er) approach. The objective of this fast-track project is to propose a flexible and generic approach to implement demand-driven research for development (R4D), while promoting partner-led processes and dissemination. We hypothesise that such an approach will improve the adaptation and integration of innovations (e.g. practices and technologies) to intensify agricultural production in more sustainable ways in crop-livestock farms. Although the testing of the whole approach goes beyond this fast-track project, we combine expert knowledge, previous experiences and fieldwork to ensure a generic and flexible framework. This document describes the major concepts, the development and testing in the field and the description of the proposed approach to support the long-term objectives of the AfricaRISING program.

Conceptual framework

Demand-led is needed to ensure that R4D process or innovations are relevant for the end users and to increase the potential adaptation and integration of innovations. Because we are dealing with mainly agricultural processes, farmers are the principal end users for any R4D process. To materialise this demand-led R4D, three major principles or approaches should be included: system approaches, diversity in livelihoods and participation.

**System approach**

Demand-led process should explicitly consider the complexity of agro-ecological systems by using or developing *integral approaches* that include the social, economic and environmental dimensions. These approaches also need to take account for not only rural livelihoods, but also processes at larger *scales* that can be affected by promoting SI including: long-term agricultural production, water availability and quality among other potential *ecosystem services*. Related to this, we might need to include intra-household scales (e.g. gender interactions) to measure sustainability. Finally, farming systems and rural regions are *dynamic with pathways* of development that need to be considered to understand the past and potential future trajectories of these systems, including the role of SI.

**Diversity in livelihoods**

Demand-led approaches need to account for the diversity across agro-ecosystems and livelihood strategies to make more relevant contributions in mixed farming systems. Households follow different *livelihood strategies,* of which **intensification** is only one (Figure 1). Other strategies can also influence limitations and options of SI and need to be considered. To follow these strategies and potential SI innovations, households depend and own different *livelihood assets—*i.e. natural, economic, human and social capitals (Table 1). Still, assets and strategies differ among households, affecting the potential adaptation and integration of SI innovations. Therefore, *diversity* of households needs to be explicitly addressed, including potential equality issues such as gender-imbalances and assets access. Strategies, assets, diversity and SI potential are largely regulated by both *institutions* (e.g. community regulations and market arrangements) and *other drivers* (e.g. climate, policies, and market demand). Finally, any innovation generates *outcomes*, whose impacts on livelihoods and sustainability need to be assessed.

Figure 1. Conceptual framework (after Scoones, 1998)

Intensification

/extensification

Diversification

Migration

Strategies

Livelihood

Sustainability

Outcomes

Institutions

Assets

Other drivers

**Stakeholder engagement**

Demand- and partner-led processes need to ensure the engagement of major stakeholders to ensure relevance of any R4D process, as well as to promote the cooperation among stakeholders. In R4D, we need to consider participation as a *capacity building process* for farmers and other stakeholders, allowing them to take their own decisions. A process to *share and generate knowledge*; where stakeholders learn by action (Brydon-Miller et al., 2003). Participation is a *multi-level process* with different levels of organisation, acknowledging that the adaptation and integration of promising innovations also depends on institutions (e.g. social rules, markets). Finally, participation can be also a *political process* (Cooke and Kothari, 2001), where power, inequity and negotiation need to be considered (Giller et al., 2008).

Table 1. Potential areas of innovation for each capital—livelihood assets (after Scoones, 1998).

|  |  |  |  |
| --- | --- | --- | --- |
| **Capitals** | | | |
| **Natural1** | **Economic** | **Human** | **Social2** |
| Soil fertility | Microfinance | Information | Cooperatives |
| Water quality/quantity | Banking | Education | Innovation platforms |
| Crop/livestock/tree spp. | Insurance | Nutrition & health | Value chains |
| Agro-biodiversity | Income | Gender |  |
| Feed resources | Machinery | Labour |  |

Notes: 1 related to ecosystem services; 2 related to institutions.

Testing in the field

To test the implementation of these major concepts for a demand-led R4D, a fieldtrip was organised in Bekoji (Arsi, Ethiopia); an area already selected by different fast-track projects of the AfricaRISING Ethiopian Highlands. Two and half days of fieldwork were planned to meet with farmers and extension officers to: understand the diversity of farmers in the area; develop and characterise a livelihood-based typology for the area; and visit different households belonging to different types to better understand such diversity.

In the field, we could only meet with farmers three half-days because of the market day and the mourning of a member of the community. Although this limited our work with farmers, it also gave us an opportunity to reflect on the process thoughtfully. In the first half-day, farmers were divided by gender and two typologies were described based on livelihood strategies. In the second half day, the group as a whole came up with one typology of six major livelihood types. Although all types often combined the same activities, the livelihood of each individual type was dominated by one major activity: cereal growers; livestock keepers; casual labours; traders and brokers; migrants; and horticulturalists. Based on this distinction, two types were selected (i.e. crop growers and horticulturalists) and the group was again split into two to characterise both of the selected types based on their current assets and future vision. However, there was not enough time to validate and characterise the typology properly. In the final half-day, we were going to visit four farmers of four different types to understand the major household assets and flows, as well as their future vision. Again, time only allowed visiting two famers (a crop grower and a livestock keeper).

The testing of the first step of a demand-led R4D generated many lessons for a potential implementation of this approach. Major lessons on the process were:

* Pre-R4D activities are necessary to develop, characterise and validate a livelihood typology.
* A participatory R4D is a time consuming process, requiring commitment by all involved partners.
* Champions, good facilitators and documentation are essential elements of the process.
* Collaboration between local and international partners is fundamental.
* Although very useful, livelihood is a difficult concept to explain to other stakeholders.
* For the Ethiopian Highlands, gender is still a major factor to take into account in participatory processes.

Proposed approach

Based on secondary literature (Ellis-Jones et al., 2005), expert knowledge and the experiences on the field, a six-step R4D approach was developed (Figure 2). An essential underlying process for the implementation of this R4D approach is *participation* of farmers and other stakeholders to ensure their engagement and their active role in the whole process. Also a system approach ensures including the principal drivers and characteristics determining the suitability of innovations to better achieve SI. For each step, different activities and methods need to be conducted (for detailed description of methods see **Annex**). Finally, across the whole R4D approach two major activities are needed:

1. *Facilitation:* creates the necessary environment allowing, challenging and empowering stakeholders to participate and learn along the R4D approach.
2. *Documentation:* records systematically the whole process, facilitating the communication, analysis and learning along the R4D approach.

Problem identification

Action planning

On-farm experimentation

Sharing experiences

**R4D**

**cycle t­­0**

Impact assessment

**R4D**

**cycle t1**

Identifying diversity

Figure 2. R4D cycle (after Ellis-Jones et al., 2005)

***Step0******Engaging & identifying diversity*** *(pre-R4D cycle):* before going into the R4D cycle, diversity of livelihood strategies within a study area need to be explicitly mapped and characterised with farmers and other key stakeholders. Based on this diversity, we can contextualise better a demand-led R4D process. For example, strategies based on non-agricultural activities might not be a priority for a project promoting SI innovations. Most importantly, this step requires entering at a community and building trust to facilitate the whole R4D process by explaining and discussing the project. To achieve this, four major activities need to be conducted:

1. *Situational analysis*: to make sure that most of the spatial and temporal diversity of livelihood strategies is included, *literature reviews* and/or *consultations with local experts* need to be conducted generating a system overview on drivers, institutions, diversity and dynamics of the agro-ecosystem.
2. *Mapping diversity*: based on this situational analysis, a large diversity of farmers can be invited for *group discussions* to build and characterise a *livelihood* *typology* of the study area.
3. *Household survey*: based on this typology, *household surveys* can be designed to validate, adapt and better characterise the identified livelihood types, as well as to better describe the whole agro-ecosystem.
4. *Type selection*: based on the previous activities and the analysis of the household survey, major types can be selected to start an individual R4D process for each of these selected types.

***R4D cycle***

***Step 1 Problem identification***: all involved stakeholders need to have a common understanding of the major strategies, challenges and potential solutions for each selected type or group of types. This step consists of one major activity: *farmer and other stakeholder consultations.* The aim of this consultation is to identify and prioritise future scenarios, opportunities, current and ideal strategies, challenges and potential solutions. Based on this prioritisation, the group can identify relevant stakeholders who should be part of the R4D processes (e.g. soil scientists, private sector or local NGOs among others).

***Step 2 Action planning****:* based on the identification and prioritisation of potential solutions and relevant stakeholders an action plan to select, adapt and test innovations or combination of innovations can be made. In this step, stakeholders come together to develop *innovation platforms* in orderto implement potential solutions. Five major activities are part of this step:

* 1. *Identification innovations*: including past and current innovations in place related to the potential solutions identified in Step 1. *Participatory mapping of current practices and “positive deviance”.*
  2. *Selection of indicators and development outcomes*: with stakeholders to assess the results of this action plan. *Participatory ranking & selection.*
  3. *Design experiments*: with stakeholders using *mother-daughter approach* (see also Step 6).
  4. *Ex-ante evaluation*: characterise the likely consequences (social, economic, environmental etc.) of the target system / farm type to develop an effective action plan to deal with them. *Ex-ante & participatory modelling.*
  5. *Skill identification and strengthening*: identify and support the management / decision making skills that farmers would require to operate these action plans and fill the gaps as required. *Training.*

***Step 3 On-farm experimentation****:* promising innovations (endogenous or exogenous) for the selected type(s) are compared by participants with common practices in on-farm (farmer-led) trials to test the added value of the new combination of innovations. This might require iteration with the *action planning* to adapt or improve the on-farm experiments. Activities and methods would largely depend on the innovation selection and experiment design.

***Step 4 Sharing experiences:*** involved stakeholders need to evaluate the experimentation and look at the learnt lessons. Three major activities can take place:

* 1. *Evaluation of innovations*: Results of on-farm experiments are evaluated by using indicators in the middle and the end of the season identified in participatory way with the selected type(s) by using *participatory M&E, budgeting and ranking*.
  2. *Drawing lesson learnt:* This is a learning process including achievements and mistakes of R4D. *Discussion and field days* are necessary to adapt this R4D process for a new season.
  3. *Share experiences*: Learning lessons in the experimentation and the whole R4D process need to be shared targeting different stakeholders and regions by linking it to *stakeholder discussions and field days* bringing together famers and other stakeholders from different regions.

**Step 6 *Impact assessment:*** this is a type of prospective evaluation that attempts to determine whether the proposed intervention has positive changes on farmers’ well-being, and if these changes are, in fact, due to the R4D intervention (as opposed to another intervention). Most impact evaluations test the efficiency and effectiveness of a particular intervention – such as the use of improved seeds and tools, or a new way of training. However, since the R4D approach is a participatory process, and builds upon the farmers’ own experiences and priorities, this type of impact assessment will be more difficult. For this reason, the R4D impact assessment will seek to measure the impact of the R4D cycle on key outcomes that are common across all villages. In particular, this will involve five major activities, some of which can be part of previous steps:

1. *Household surveys* (Step 0): Collect baseline data from a subsample of farm households in all eligible communities prior to the program, primarily on socio-demographic information, agricultural knowledge and practices, assets, sustainable intensification, social capital and other livelihoods.
2. *Type identification* (Step 0): identifying key eligible types for project.
3. *Farmer selection* (Step 2): of those eligible types, randomly assigning ½ of the farmers belonging to these types to participate in the R4D cycle (at least during the first year).
4. *Panel surveys:* after the R4D cycle, we need to collect follow-up data from the same farm households (a panel) using a similar type of survey instrument.
5. *Assessment:* comparative analysis can elucidate the potential impact of the R4D approach. This can be done by comparing the panel surveys, or the population of farmers who participate in the process and those who did not.

Concluding remarks

The combination of expert knowledge and fieldwork confirm that the implementation of demand-led R4D needs to consider the diversity of households to better approach SI in smallholder mixed farming systems. The use of typologies is a relevant methodological approach to account for household diversity by including the major livelihood strategies in a study area. Still livelihood is not a straightforward concept and a clear and common understanding among stakeholders is fundamental. The relevance of these typologies, as well as the engagement of farmers and other stakeholders into R4D processes, requires appropriate participatory processes. To achieve this, good facilitation and collaboration among stakeholders is essential.

Based on these experiences, three major questions on the proper implementation of a R4D approach still remain related to: organisational arrangements, capacity building and up/out-scaling.

1. *Organisational arrangements*: how can national and international organisations build synergies to promote partner-led processes?
2. *Capacity building*: how can we ensure proper facilitation and translation (when needed it) along the R4D process?
3. *Up/out-scaling*: how this R4D approach can go beyond localised impact? Can we extrapolate results to similar types in other regions? Do we need to replicate the process in different regions before up-scaling?

References

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**Annex**: description of the proposed methods to carry out the proposed activities.

**General**

1. *Facilitation*
2. *Documentation*

***Step 0***

1. *Situational analysis*
2. *Mapping diversity*
3. *Household survey*
4. *Type selection*

***R4D cycle***

***Step 1*** *Farmer and other stakeholder consultations.*

***Step 2***

1. *Identification innovations*

*Participatory mapping:*

1. *Selection of indicators and development outcomes*

*Participatory ranking & selection:*

1. *Design experiments*

*Mother-daughter approach:*

1. *Ex-ante evaluation*

*Ex-ante & participatory modelling:*

1. *Skill identification and strengthening*:

*Training:*

***Step 4***

1. *Evaluation of innovations*

*Participatory M&E:*

*Budgeting and ranking*:

1. *Drawing lesson learnt:*

*Stakeholder discussion:*

*Field days:*

1. *Share experiences*:

*Stakeholder discussions:*

*Field days:*